

## SPLENIC INFARCTION IN MALARIA- THE NEED FOR A CLOSER LOOK

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### ABSTRACT

Splenic infarction is a rare complication of malaria and its clinical course remains incompletely understood. We are reporting a case of *Plasmodium Falciparum* malaria with multiple splenic infarcts and its clinical course. It remains unclear whether routine antibiotics for malarial splenic infarcts is required. This calls for a closer attention and reporting so as to evolve a prudent set of guidelines which is more relevant in tropical countries like ours.

**KEYWORDS:** Spleen, infarction, *Plasmodium Falciparum*, malaria

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### INTRODUCTION

Splenic infarction is a rare complication of malaria and its clinical course remains incompletely understood. Exact statistical data of the morbidity and mortality burden of this complication is not available. The paucity in the literature regarding this complication of a common disease tends to blunt the index of suspicion of the same among physicians. Herein we are reporting a case of *Plasmodium Falciparum* malaria with multiple splenic infarcts and its clinical course.

### CASE RECORD

A 35 year old male patient, who is a shop keeper by occupation, came to the medical emergency with complaints of fever for 5 days which was associated with chills and rigors & multiple episodes of vomiting for 2 days. On admission the patient was febrile (101.4 ° F) and hypotensive (BP: 70mmHg systolic). BP failed to normalize after a fluid challenge and hence he was started on inotropic support. Samples were obtained for blood culture, Complete blood counts, urine routine, Peripheral blood smear and Leptospirosis serology.

PBS examination revealed *Plasmodium falciparum* malaria.

Complete blood count showed severe anemia (Hb 5.6 gm %) and thrombocytopenia (Platelet count 35000/mm<sup>3</sup>) with Normal total and differential counts. His kidney function tests (urea 86 mg %) and liver function tests (T. Bil – 2.6, ALT – 78, AST – 172, ALP – 124) were deranged. His total protein was 4.7g% and Serum albumin was 2.3 gm%. HIV was non – reactive. Urine routine, leptospira serology, rK 39 test, serum electrolytes, echocardiography and coagulation profile were within normal limits. Abdominal USG on admission was unremarkable.

Patient was started on standard anti malarial regimen according to National Drug Policy on Malaria [Inj. Artesunate 2.4 mg/kg body weight IV given on admission (time = 0h); then at 12 h and 24 h and then once a day for 2 more days]( National Drug Policy on Malaria, 2012). Antipyretics and Intravenous fluids were given for symptomatic management. The spikes of fever started to decline but low grade fever was continuously present. The patient started to accept orally on day 3 of admission and we switched over to oral Artemisinin based Combination Therapy (ACT) for 3 days (National Drug Policy on Malaria, 2012) , to complete the full course of the recommended anti malarias. By now the patient was weaned off inotropic support. On day 5 of admission patient clinically was having left hypochondrial tenderness. So a repeat USG abdomen was done which showed multiple hypoechoic lesions in the spleen suggestive of suspicious infarcts. A CECT abdomen was done which revealed the presence of multiple splenic infarcts.



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Blood and Urine cultures were sterile. Since the patient was persistently febrile, empirically antibiotics were started. After 48 hrs of antibiotic therapy, patient become afebrile and his abdominal pain started to subside. The patient clinically recovered on conservative management.

#### DISCUSSION

Splenic infarction tends to receive less medical attention after standard antimalarial therapy. Our patient developed this complication during the course of antimalarial treatment at the end of first week of onset of fever. We found that even after the completion of course of standard anti malarials, the patient was running mild fever. The presentation of splenic infarction with low grade fever despite the completion of the course of antimalarial treatment raises queries regarding the role of empirical antibiotics and the protocol for conservative approach and it can also misdiagnose the patient to be a drug resistant case.

Splenic infarction is a rare entity which poses a diagnostic challenge due to the non-specific clinical presentations. A Medline search on PubMed for 'malaria' and 'splenic infarction' shows eight cases, which have been summarized by Bonnard *et al.* (2005). Two other case reports are described (including a case which was detected incidentally during an autopsy) adding up to a total of ten descriptions till date. Mostly they were young patients (3 to 30 years old), all infected with *P. Falciparum* (except one case of co-infected with *P. vivax* and one case unknown). They all survived with medical treatment (except one surgical treatment). In the 10 cases of splenic infarction reported over the last 30 years, only two cases were complicated by splenic rupture (in a child with a *P. vivax* and in a *P. Falciparum* mixed infection and in an adult suffering from *P. vivax* malaria) (Facer and Rouse 1991; Patel 1993). No death due to splenic complications was mentioned.

#### CONCLUSION

As of now, routine radiological evaluation for spleen in malarial patients is not mandatory, which if carried out can add to the number of cases and prevalence. It remains unclear whether routine antibiotics for malarial splenic infarcts is required / justified. This calls for a closer attention and reporting so as to evolve a prudent set of guidelines which is more relevant in tropical countries like ours.

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TABLE 1: Reported Cases of Splenic Infarction and Clinical Outcomes of Various Malarial Species Till Date in Literature

S.no	AGE/SEX	Year/Place	MALARIAL SPECIES	Day of Diagnosis after feve onset	Treatment/Outcome
1.	41 year man <sup>5</sup>	2008/ Kasturba Medical College, Mangalore, India.	<i>P. vivax</i>	On admission-multiple splenic infarcts	Conservative / cured
2.	38 year male <sup>5</sup>	2008/ Kasturba Medical College, Mangalore, India	<i>P. vivax</i>	On admission-splenic rupture	Conservative / cured
3.	65 year male <sup>5</sup>	2008/ Kasturba Medical College, Mangalore, India	<i>P. vivax+P.Falciparum</i>	7 <sup>th</sup> day-multiple splenic infarcts	Conservative / cured
4.	15 year male <sup>5</sup>	2008/ Kasturba Medical College, Mangalore, India	<i>P. vivax+P.Falciparum</i>	4 <sup>th</sup> day- splenic rupture	Conservative / cured
5.	A21-year-old woman <sup>6</sup>	May 2004, Italian nongovernmental organization (NGO) in Freetown, Sierra Leone	<i>P.Falciparum</i>	On admission splenic rupture	Splenectomy/cured
6.	11 years old Boy <sup>7</sup>	Department of Pediatrics, Ramakrishna Mission Seva Pr atisthan and Viveka nanda Institute of Medical Sciences, Calcutta 700 026	<i>P.Falciparum</i>	Day 5 of fever , splenic infarcts	Conservative / cured
7.	34-year male <sup>8</sup>	2010, Military Hospital Legouest, Metz, France.	<i>P. ovale</i>	Day 6 of fever, splenic infarcts	Conservative / cured
8.	57 year old woman <sup>9</sup>	(Paediatrics), 166 Military Hospital, C/o 56 APO. +Graded Specialist,	<i>P. vivax+P.Falciparum</i>	On admission, day 5 of fever, splenic infarcts	Conservative / cured



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		(Radiology), Military Hospital, CTC, Pune.			
9.	7 yr old girl <sup>10</sup>	1997, Agarwal Nursing Home, 19/8 Thorn Hill Road, Allahabad 211 001	<i>P. Falciparum</i>	10 <sup>th</sup> day of fever, splenic infarcts	Conservative / cured
10.	3 yr old Boy <sup>10</sup>	1997, Agarwal Nursing Home, 19/8 Thorn Hill Road, Allahabad 211 001	<i>P. Falciparum</i>	10 <sup>th</sup> day of fever, splenic infarcts	Conservative / cured
11.	16 year-old-male <sup>11</sup>	2005, Postgraduate Institute of Medical Sciences, Rohtak - 124 001 (Haryana), India.	<i>P. falciparum</i>	2 <sup>nd</sup> day of admission, splenic infarcts	Conservative / cured
12.	34-year-old man <sup>12</sup>	2007, Inha University Hospital in Incheon, Korea	<i>P. vivax</i>	11 <sup>th</sup> day of fever, splenic infarcts	Conservative / cured
13.	38-year-old Korean woman <sup>13</sup>	2008, Department of Surgery, Uijeongbu St. Mary's Hospital, The Catholic University of Korea College of Medicine, Uijeongbu, Korea	<i>P. vivax</i>	8 <sup>th</sup> day of fever, splenic infarct	Conservative / cured
14.	28-year-old female <sup>14</sup>	2010, G. R. Medical College, Gwalior - 474 001, Madhya Pradesh.	<i>P. falciparum</i>	Day 5 of fever, splenic infarct	Conservative / cured



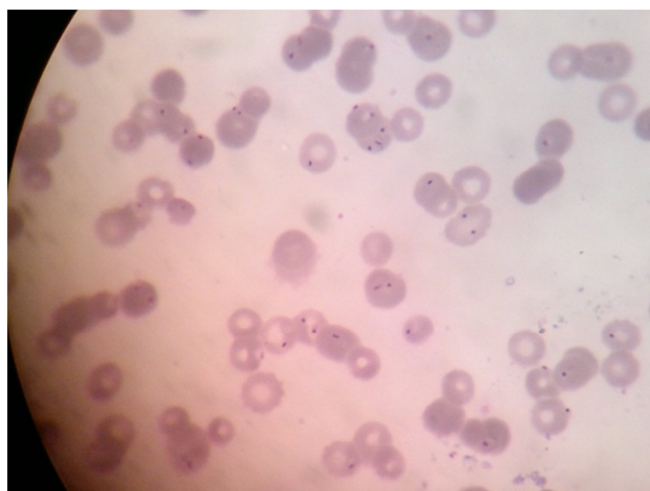


Fig 1: The peripheral smear showing ring forms of Plasmodium falciparum malaria inside the RBC.



Figure 2



Figure 3



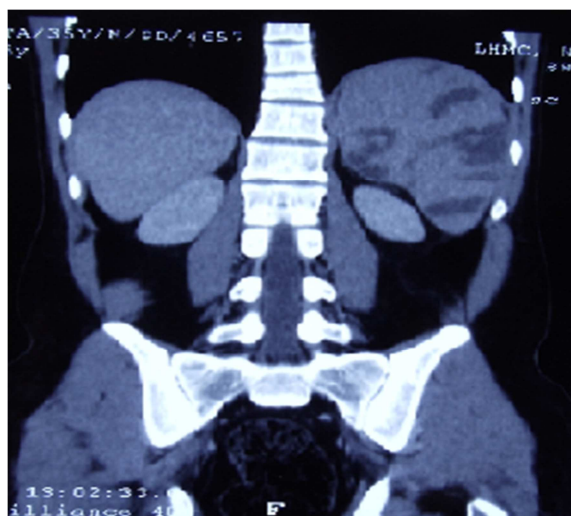


Figure 4

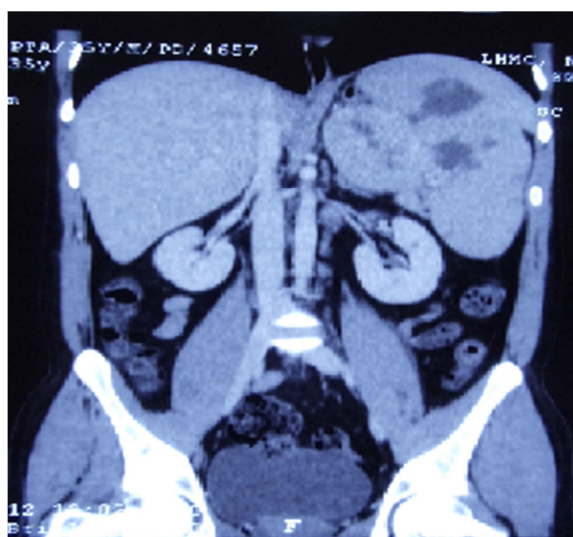


Figure 5

FIG 2, 3, 4, 5: Contrast enhanced computed tomography of abdomen of the patient- illustrating the presence of multiple hypodensities in the spleen suggestive of splenic infarctions.